FIG. 2

60. A system of viewing video information stored on a removable high capacity storage medium, the system comprising:

an input device configured to read the video information from the high capacity storage medium, the video information stored on the high capacity storage medium having a digital audio component and a digital video component, the digital video component having an intermediate format having a frame rate of substantially 24 frames per second (fps);

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the digital video component having been formed by converting input video information having an input format with no added redundant frames or fields;

a graphics processor in data communication with the input device and configured to convert the digital video component in its intermediate format to output video information in an output format, the output format having a frame rate that is greater than or equal to the frame rate of the intermediate format, the graphics processor further being capable of being in data communication with a display device for viewing the output video information in the output format.
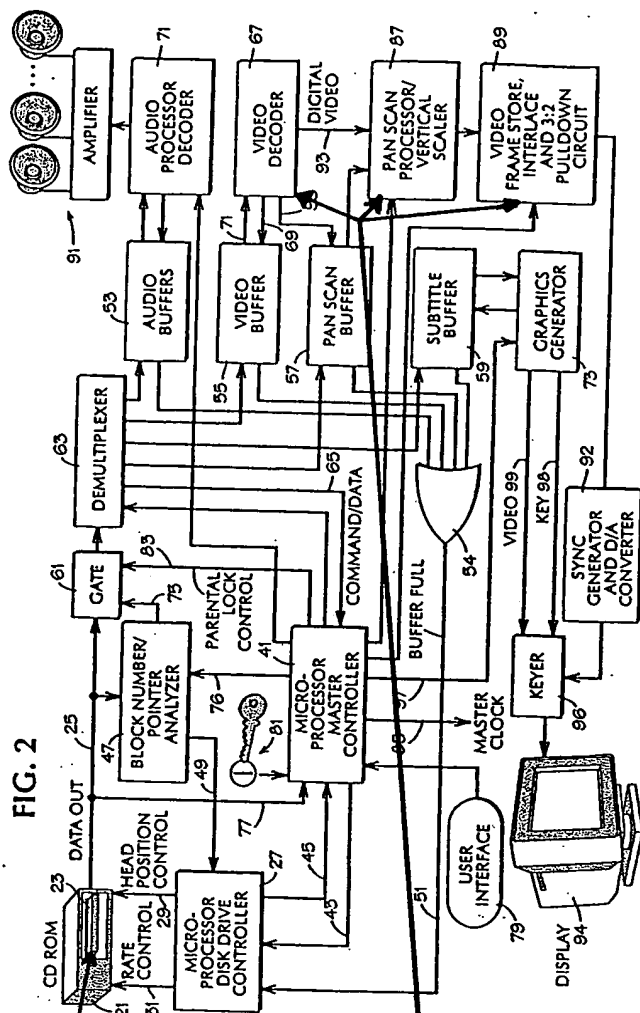
The MPEG standards are designed to allow picture frames to be encoded with a minimal number of bits. Frame information is required at a constant rate. For example, if a motion picture film is represented in digital form on the disk, 24 frames will be represented for each second of play.

3:2 pulldown is the technique used to convert 24-frames-per-second motion pictures to 60-fields-per-second video (the nominal values of 24 and 60 are in reality 23.97 and 59.94); to convert data representative of a motion picture to an NTSC format, frame information (data blocks) must be read at the rate of 24 per second. (As is standard in the art, such a transformation applies frame 1 of the source material to fields 1, 2 and 3 of the video signal, frame 2 of the source material to fields 4 and 5 of the video signal, frame 3 of the source material to fields 6, 7 and 8, etc., thus yielding 60 fields for 24 original frames.) On the other hand, conversion to the PAL standard is relatively simple, and 3:2 pulldown is not required. The PAL standard requires 50 fields per second. Frames are processed at the rate of 25 per second, and every frame is used to form two fields. (Because motion picture films are shot at the rate of 24 frames per second yet processed at the rate of 25 per second when converting to PAL, everything which occurs on the TV screen takes place 4% faster in Europe than it does in the United States.) Whether the frames are processed at the rate of 25 per second or 24 per second is controlled by changing the frequency of the MASTER CLOCK signal on bus 85.

✳ not a structural limitation